

Notice as "Comments (or Reply Comments) – NBP Public Notice #1."

About the definition of broadband:

1. Form, Characteristics, and Performance Indicators.

a) The form that a definition of broadband should take:

A simple list of set standards based on delivery method. Lets be realistic and acknowledge we have set limits in our infrastructure and cant demand unrealistic stats from a old infrastructure.

b) whether to develop a single definition, or multiple definitions;

Multiple, because we have two very different worlds between wireless delivery and wireless delivery. We can't rule out one or the other to be included in this plan. Also make limits that companies that deliver services via one method, cant begin to deliver them over a different method just to receive funding. Ie: a landline telco invests in satellite because the funding is more available in that market.

c) whether an application-based approach to defining broadband would work, and how such an approach could be expressed in terms of performance indicators.

If the application is 100% third party and not controlled by the isp's. Also keep an eye out for isp's having the ability to detect the testing application, and simply boosting the broadband performance during the application test. This already happens with several speed testing services on the web.

d. the key characteristics and specific performance indicators that should be used to define broadband;

Latency: speed in ms

Throughput: data in kbps or mbps

Uptime: Time in % per year

Reliability: $100\% - ((\% \text{ of time per hour that Throughput is not meeting minimum specified value. }) (\% \text{ of time per hour that Latency is exceeding maximum specified value.})) \div 2$

Traffic loading: Must be avoided at all costs, A ISP must not interfere with data QOS no more than 5% of packets per each hour. A ISP may only change traffic loading if they can prove that network is operating at more than 95% of capacity, at which time the ISP is given a set amount of time to upgrade their network. Traffic loading should be looked at as an emergency fix until the network is

fixed. No single type of data can be sorted differently than any other type.

e. what segment(s) of the network each performance indicator should measure, such as the local access link to the end user, or an end-to-end path;

End to end path, to avoid the ISP attempting to speed up paths that may be known and used for testing. The ISP should be completely unable to detect testing, to avoid false performance data.

f. how factors such as latency, jitter, traffic loading, diurnal patterns, reliability, and mobility should specifically be taken into account;

All should be taken into account on a certain percentage of 100, and each must meet a specified value. Latency, traffic loading, and reliability are the most important.

g. whether different performance indicators or definitions should be developed based on technological or other distinctions, such as mobility or the provision of the service over a wired or wireless network;

Yes each performance statistic must be developed based on current delivery methods. Although this can hinder the ability of a ISP to offer hybrid solutions to consumers. Also make sure an ISP cant redefine itself to a lower standard, just to lower or avoid operating/upgrade costs.

h. the feasibility and verifiability of measuring different performance indicators.

All data must be measured by a third party. And ISP's must not interfere in the testing ability in any way at all.

2. Thresholds:

a. what minimum thresholds should be assigned to the performance indicators;

Throughput: 3mbps/500kbps for wired services, 1.5mbps/256mbps for wireless/satellite services. This spec is suitable for video

streaming, and downloading, any slower speeds severely limit video and high intensive usage.

Latency: under 100ms for wired services and under 500ms for wireless services

Traffic loading: Less than 5% of total packets per hour. Of the 5% of packets that are sorted differently the packets latency must not be any more than 200% of max latency threshold.

Reliability: More than 99% per hour using performance indicator listed above.

b. the minimum thresholds necessary for broad classes of applications to function properly;

Basic web research and browsing, Throughput 768k/128k, Latency 500ms, Traffic loading <20%, Reliability >98%

Medical monitoring systems, Throughput 768k/128k, Latency 50ms, Traffic loading <0%, Reliability >99.9%

Low quality video streaming, Throughput 3000k/256k, Latency 500ms, Traffic loading <20%, Reliability >98%

HD video streaming / large file transfers, Throughput 12000k/1500k, Latency 500ms, Traffic loading <20%, Reliability >98%

Live gaming, Throughput 768k/128k, Latency 50ms, Traffic loading <1%, Reliability >99%

Video Conferencing, Throughput 3000k/1500k, Latency 100ms, Traffic loading <5%, Reliability >99%

VIOP, Throughput 256k/128k, Latency 50ms, Traffic loading <1%, Reliability >99.9%

Place shifting (ie: sling box type applications) Throughput 768k/1500k, Latency 500ms, Traffic loading <10%, Reliability >98%

c. whether we should adopt multiple, escalating tiers of minimum thresholds.

multiple.

Tier 1: basic broadband: Throughput 1500k/256k, Latency 500ms, Traffic loading <10%, Reliability >99%

Tier 2: standard broadband: Throughput 6000k/700k, Latency 100ms, Traffic loading <5%, Reliability >99%

Tier 3: improved broadband: Throughput 12000k/1500k, Latency 50ms, Traffic loading <2.5%, Reliability >99.5%

Tier 4: preferred broadband: Throughput 24000k/3000k, Latency 25ms, Traffic loading <1.75%, Reliability >99.9%

3. Updates:

a. what ongoing process should be put in place to update the definition, particularly the threshold levels;

When users use 90% or more of their thresholds for more than 25% of each day.

When new applications can't be adopted by more than 10% of "broadband users" that want the application.

When the "broadband" connection falls below 1% of the users LAN connection speed. Ie: 1gbps LAN = 10mbps broadband. look back to 2004 1% of 100mbps = 1mbps. This has been consistent.

b. how often should such updates should occur;

Every 18 months.

c. what criteria should be used to adjust thresholds over time;
See A.

d. how modifications over time to the definition will affect the Commission's ability to collect and publish meaningful data on broadband deployment and adoption.

Broadband has experienced explosive and slow times of growth and adoption, it's a uneven process, that may need to be averaged over many years. New methods of testing may become necessary.